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MARSHES AND TURBID WATERS

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Type I Report for Period of August-October 1972

CENTRE NATIONAL D'ETUDES SPATIALES  
129 rue de l'Université  
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(E72-10251) MARSHES AND TURBID WATERS  
Report for Aug. - Oct. 1972 F. Verger  
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12. Sponsoring Agency Name and Address Centre National d'Etudes Spatiales 129 rue de l'Université 75007 - PARIS. France		13. Key Words Coastal Marsh , Littoral Transport , Tidal Flat in the French Atlantic Littoral.
14. Supplementary Notes prepared in cooperation with D. Bellan , B. Cahagne, C. Cazabat, H. Kadiri and R. Regrain.		
15. Abstract  - This first Type I Progress Report concerns the beginning of studies on MSS images received on October 26, 1972. These studies which are actually starting, and are not yet finished, show interesting results in spite of the cloud cover which has not been favourable. Therefore, the data processing which is on hand, permits us to hope excellent results on the littoral zones when the meteorological condi- tions are satisfactory.  - Bibliography		

A SHORT STATEMENT DESCRIBING THE OBJECTIVE  
OF THE PROJECT (SR NUMBER 031)

The object of this project is to study the alluvial zones of the French Atlantic littoral at a taxonomic scale which can bring out the generalization concerning the nature of their sediments and their geomorphic forms, an objective which can be achieved with the aid of orbital photographs. It is hoped that such research will serve to correlate the data obtained during the last several years by the principal investigator and the co-investigators, with new data, provided by the ERTS-1 Satellite, taken from the same surface area.

The request is for views of the regions concerned where the mean cloud cover is not greater than 60%, since a greater cloud cover will not provide, for our purposes, a valid pictorial representation of the area. It will be necessary to run as many trails as possible to study both the alluvial plains (in Bands 5, 6 and 7), indicating the seasonal phases of the lowest and highest humidity as well as the turbidity of littoral waters (in Bands 4 and 5) which change in relation to the tides, because the phenomena studied present a very rapid evolution which has been of primary interest to the investigators until now.

A better overall understanding of these alluvial zones and the origin of the sedimentary forms will not be limited to theoretical interest alone, but will have practical application in numerous fields such as agriculture, shell fishing and land reclamation

This Type I Report n°1 concerns the following images : ( fig.)

1031 10350 4

5

7

1031 10352 4

5

6

7

1031 10355 4

5

6

7

1031 10361 4

5

6

7

These Images which have been sent by the GSFC on October 16, 1972, have been received by F.VERGER, P.I. only on October 26, 1972.

The four MSS bands 4, 5, 6 and 7 have been furnished for the following frames :

1031 10352

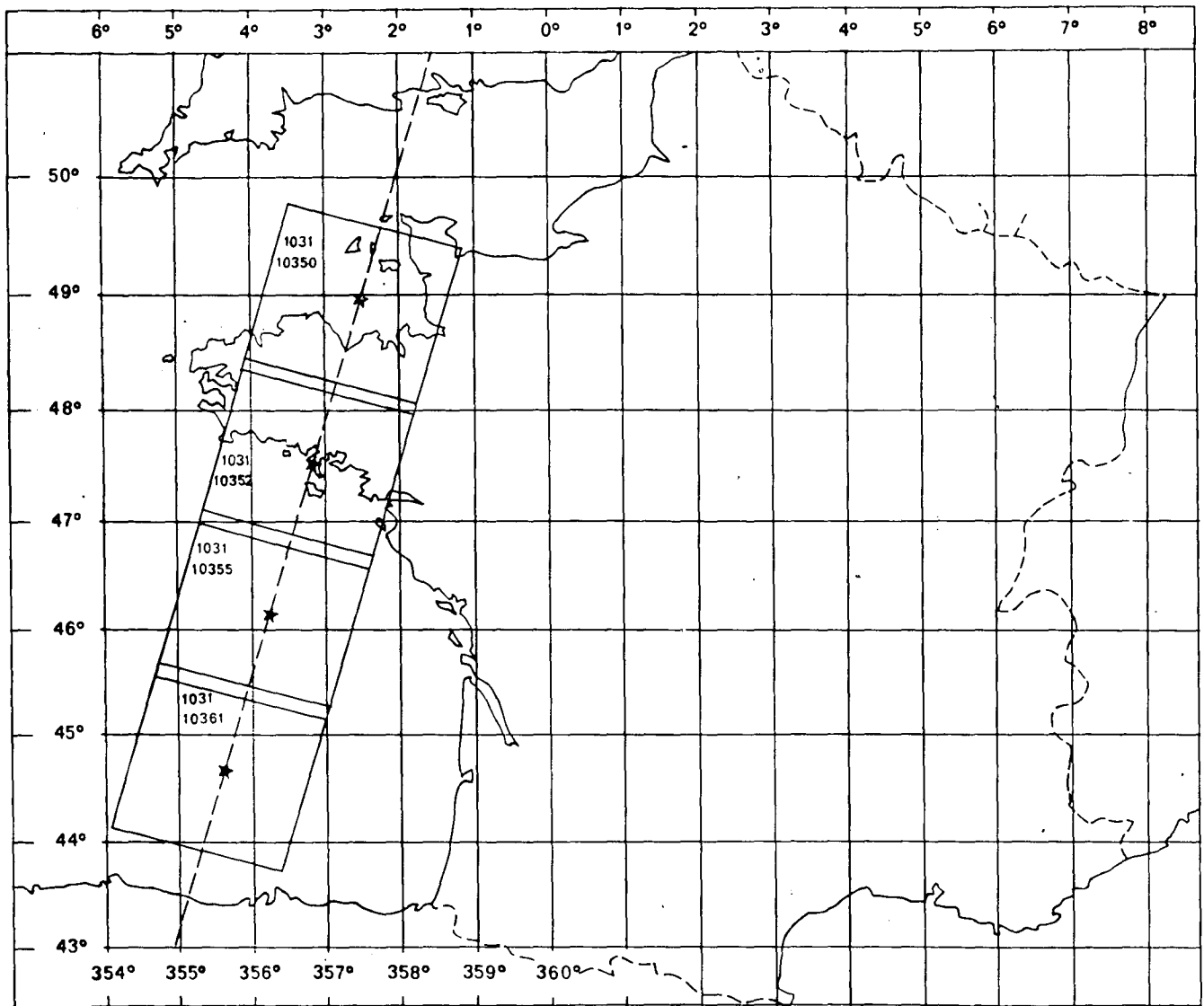
1031 10355

1031 10361

For the frame 1031 10350 only the bands 4, 5 and 7 have been furnished and not the MSS spectral band 6 .

All the Images have been received in the format M, T and P. All these formats are utilized now by the shift to the fralit program. Actually, the results obtained from these data, on film T and print P, format 9,5 in. are better than the results obtained from film (M) 70mm.

Fig. LOCATION OF MSS IMAGES



★ nadir  
— ground trace

A DISCUSSION OF THE ACCOMPLISHMENT DURING  
THE REPORTING PERIOD  
( August-October 1972)

MSS Imagery is actually being processed by photographic and densitometric techniques. We try to produce printed images from the images received.

Resulting data are compared with ground truth data obtained at the very time ERTS-1 passes. Cartographic schemes of images interpretation are under processing.

Studies required by Data Analyses Plan will be made from first images received and from Nasa's next Data.

A: DESCRIPTION OF MAJOR PROBLEMS ENCOUNTERED  
DURING THE COURSE OF THE INVESTIGATION

- 1) - The System Corrected Images n° 031 10350 4 ; 031 10350 5 and 031 10350 7, were not geometrically satisfactory. So, the report of marine observations on a chart has been difficult from bands 4 and 5 .
- 2) - The cloud cover which is less than 60 % in the System Corrected Images received, is , unfortunately, superior to this value on the zones of maximal interest viz. our purposes.
- 3) - Delays of image processing have impeded complete study of these first images received on October 26, 1972.

## A DISCUSSION OF SIGNIFICANT RESULTS AND THE RELATIONSHIP TO PRACTICAL APPLICATION OF OPERATIONAL PROBLEMS

### - 031 10350 4, 5 and 7 :

The above mentioned images permit a study of the relationship between the cloud system and the littoral, with several observations noted from the ground: an influence of the littoral on the atmospheric convergence.

### - 031 10350 4:

This view taken on the "Golfe de Saint Malo" permits an observation of littoral transports at the falling tide, containing currents laden with silt in suspension. The information observed in the images coincides with what is already known re : the tidal currents. This MSS Band 4 is difficult to use for the remote-sensing of the Coast line.

### - 031 10350 5 :

The information taken from this band is useful for the definition of the Inshore Zone and the Coast Line. We have determined the difference between the peaty coastal and the silted marsh. The dam of Rance and the harbor basin of the St Malo are easily identifiable.

### - 031 10350 7:

The data are excellent, allowing a study of the area zones left humid by the falling tide. The Coast Line is perfectly visible.

### - 031 10352 4:

permits the observation of the nature of the Shoal, and the sandy Bay-Head Beach, and the coastal sand.

- 031 10352 5 :

**permits** the observation of vegetation and forests

- 031 10352 6 :

**permits** the best observation of the Coast Line

- 031 10352 7 :

**permits** the observation of Lake and the Coast Line

- 031 10355 4, 5, 6 and 7 ; 031 10361 4, 5 , 6 and 7 :

These frames, taken on the Gulf of Biscaye and situated in the western part of our zone, have no very great interest with respect to the purposes of our project.

- Analyses of the Data received are effected in relation to ground observations. The Data processing which permits selection of research themes, from the different bands, is presently being done.

- The experiences acquired in the course of the study of the first images have lead the investigators to multiply ground observations for the next ERTS-1 passes. These experiences are necessary to perfect the techniques of Images Analyses.

STATEMENT DESCRIBING THE SIGNIFICANT CHANGES  
IN OPERATING PROCEDURES

No change is foreseen in the research program except the Data processing of MSS spectral bands 4, 5 and 6 in place of Data from RBV spectral bands 1, 2, 3 ( non functional in ERTS-1).

LIST OF PUBLISHED ARTICLES DURING THE REPORTING  
PERIOD ( August - October 1972 )

- CAZABAT, Charles; DEMATHIEU, Pierre; DUPUIS, Jacques and VERGER, Fernand : Le Programme Fralit. Télédétection, par le Satellite ERTS-A, du littoral océanique de la France. Bulletin d'Information de l'Institut Géographique National, n° 19 -Septembre 1972, 9 p.
- VERGER, Fernand : Un programme de télédétection sur le littoral français (Satellite ERTS-A de la NASA), Actes du 97è Congrès des Sociétés Savantes. Paris, Imprimerie Nationale (under Press).

RECOMMENDATIONS CONCERNING PRACTICAL CHANGES IN  
OPERATIONS, ADDITIONAL INVESTIGATIVE EFFORT, CORRELA-  
TION OF EFFORT AND/OR RESULTS AS RELATED TO THE MAXI-  
MUM UTILIZATION OF THE ERTS SYSTEM.

NONE

## ERTS IMAGE DESCRIPTOR FORM

(See Instructions on Back)

DATE November 21, 1972

PRINCIPAL INVESTIGATOR Dr. Fernand VERGER

GSFC F. 0429

ORGANIZATION ECOLE PRATIQUE DES HAUTES ETUDES

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N \_\_\_\_\_

ID \_\_\_\_\_

PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	Littoral Transport	Tidal Flat	Coastal Marsh	
1031 10350 4	✓	✓	-	Shallow Water; Mud Flat; Inshore Zone; Sediment; Island; Advancing Shore- line; Salt Marsh; Stratus; Alto cumulus; Cloud Streets; Haze.
1031 10350 5	✓	✓	✓	Shallow Water; Mud Flat; Inshore Zone; Coast Line; Island; Advancing Shore- line; Salt Marsh; Dam; Harbor; Stratus; Altocu- mulus; Cloud Streets.
1031 10350 7		EEO	✓	Mud Flat; Coast Line; Island; Advancing Shore- line; Harbor; Stratus; Alto cumulus; Cloud Streets.

\*FOR DESCRIPTORS WHICH WILL OCCUR FREQUENTLY, WRITE THE DESCRIPTOR TERMS IN THESE COLUMN HEADING SPACES NOW AND USE A CHECK (✓) MARK IN THE APPROPRIATE PRODUCT ID LINES. (FOR OTHER DESCRIPTORS, WRITE THE TERM UNDER THE DESCRIPTORS COLUMN).

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PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	Coastal Marsh	Island	Tombolo	
1031 10352 4		✓	✓	Shallow Water; Sediment; Bay-Head Beach; Orogra- phic Cloud; Altocumulus.
1031 10352 5	✓	✓	✓	Bay-Head Beach; Forest; Vegetation; Meander; Altocumulus; Orographic Cloud.
1031 10352 6	✓	✓	✓	Coast; Coast Line; Clouds.
1031 10352 7	✓	✓	✓	Lake; Coast; Coast Line.

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PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	Clouds			
1031 10355 4	✓			
1031 10355 5	✓			
1031 10355 6	✓			
1031 10355 7	✓			
1031 10361 4	✓			
1031 10361 5	✓			
1031 10361 6	✓			
1031 10361 7	✓			

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